



Mammals from the Base de Selva da Polícia Militar, Porto Velho, Rondônia, Brazil

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Abstract. The state of Rondônia harbors 185 of the 399 species of mammals recorded from the Amazon biome, which corresponds to 46.4% of the total number of species. The state is also an important center of diversity and endemism, especially due to the presence of major biogeographical barriers such as the rio Madeira. We employed trap cameras and track surveys to assess the mammal community in the Base de Selva da Polícia Militar in Rondônia state, Brazil. During one year of survey, we recorded 40 species of medium-sized and large mammals, and, in our study, we recorded the highest mammal richness for a locality in Rondônia, which highlights the importance of private protected areas for mammal conservation in the state. Camera-trap records also showed the occurrence of threatened species. Finally, we provide recommendations for additional studies in this region that is threatened by deforestation and expansion of agriculture.

Keywords. Camera trap, Madeira River, private protected areas, species richness

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Introduction

Brazil is the country with the highest biodiversity of mammals in the world, with 775 native species recognized (Abreu et al. 2022). This amounts to 13% of the

mammal diversity on the planet (Quintela et al. 2020). Mammals provide several ecological services in the ecosystems they occur, contributing to seed dispersion, pollination, predation, and other ecological interactions (Lacher et al. 2019). They also are a traditional

source of protein, income, and medicine for human populations (Baía Júnior et al. 2010; Oliveira and Calouro 2020; Oliveira et al. 2021; Sena et al. 2021). The exploitation of mammals is tied to the use of forests for economic development, which causes habitat reduction and fragmentation (Silva-Junior et al. 2022). Mammals are one of the groups most affected by habitat loss (Costa et al. 2019) and are threatened by changes in their social structure, reduced availability of prey, and changes in reproductive behavior, among other threats. (Palmeira and Barrela, 2007). For this reason, knowing the distribution of species and potential threats to them are essential to prioritizing conservation actions.

The Brazilian state of Rondônia harbors 185 of the 399 species (or 46.4%) of mammals known from the Brazilian Amazon (Andriolo et al. 2022). Thus, Rondônia is an important center of endemism, especially due to the presence of major biogeographical barriers such as the rio Madeira in the northern part of the state (Silva et al. 2005). However, the state is completely inserted within the “Arc of Deforestation”, a region characterized by one of the highest rates of deforestation in the Amazon (Cabral et al. 2018). As almost everywhere in the Neotropics, mammals in Rondônia face a variety of threats, including hunting (Ramos et al. 2020; Oliveira et al. 2022), roadkill (Caires et al. 2019; Pommer-Barbosa and Oliveira 2022; Oliveira et al. 2023), retaliation due to human–wildlife conflicts (Lima et al. 2020), and habitat loss from construction of hydroelectric power plants (Araujo et al. 2022). Therefore, protected areas are necessary to ensure the maintenance of mammalian populations.

The Brazilian government has established various types of protected areas as a way to make sure that different species of flora and fauna are kept safe. In the rural environment, especially within privately-owned areas, the Brazilian Forest Code establishes the mandatory creation of permanent protected areas and legal reserves. Both categories have a special regime of use and have, as one of their functions, to ensure the protection of biodiversity as well as the quality of life of human populations (Law 12.651, May 25, 2012). In addition, it is important to consider the ecological relation among the species of the community, the use of the forests by traditional communities, and environmental awareness that ensure a temporary refuge for seed-dispersing mammals (Cazetta and Fahrig 2022; Souza et al. 2022). Thus, the maintenance and protection of biodiversity, notably the mammalian fauna, in these protected areas need to be evaluated.

Andriolo et al. (2022) noted that more faunal survey studies are needed to determine the geographical distribution and mammal diversity in Rondônia. With the aim to fill this gap and improve our knowledge of the distribution of mammals and the list of species occurring in Rondônia, we conducted an inventory of medium-sized and large non-volant mammals at the Base de Selva da Polícia Militar in Porto Velho, Rondônia.

Study Area

We conducted our study at the Base de Selva da Polícia Militar from Rondônia state, under the responsibility of the Special Operations Battalion. The base is approximately 6,100 km² and is located in the municipality of Porto Velho, at km 42 of the BR-364 highway exit to the state of Acre, lot 43 A, Gleba Garças, Sector 04 (09°06'21.22"S, 064°01'34.59"W). The area is part of the microbasin of the rio Garças, a right margin tributary of rio Madeira. The base is covered by primary forest within a large forest block of approximately 1,700 km² (Fig. 1). The area was created primarily for environmental education activities and for jungle-environment training for policemen, firefighters, the Brazilian army, the civil police, the State Secretariat for Environmental Development, universities, scouts, and other entities in order to conserve fauna and flora and to train. The surrounding properties of the base have small, diverse livestock ranches, such as chickens and cattle.

With the urban development in the municipality of Porto Velho and the advancement of agriculture and real estate speculation, the area became the target of several attempts to invade land for disorderly and criminal exploitation. The vegetation typology of the region is Lowland Ombrophilous Forest with vines, and around our study site there are deforested rural properties. The region has an equatorial climate with two well-defined seasons: a dry season between May and September and a rainy season between October and April; average annual temperature is between 17 and 24 °C. The seasonal climate reflects droughts during the winter and heavy rains in the summer. The average annual rainfall in the state varies between 1,340 mm and 2,340 mm, with the average for June, July, and August <50 mm/month (Silva et al. 2015).

During the study, hunters were recorded in camera traps in four occasions, and we also observed dogs, hunter-waiting areas, and shotgun cartridges. All events were checked with the headquarters management to verify that they were not related to training, and it was confirmed that they were illegal hunters. According to management, it is common for hunters to infiltrate the area.

Methods

We conducted our survey of medium-sized and large mammals using camera traps from July 2020 to June 2021, which included both dry and rainy seasons. We used eight camera traps (HC-900A) fixed to trees at an average height of 50 cm from the ground and positioned to ensure the best probability of recording. As this is a military police area, it is not possible to indicate the location of the camera traps.

The cameras continuously recorded 30-second videos when activated, with no pauses between recordings. The cameras were operational for the entire 12-month sampling period, operating 24 hours a day for a total of 70,080 hours of the total of all cameras installed.

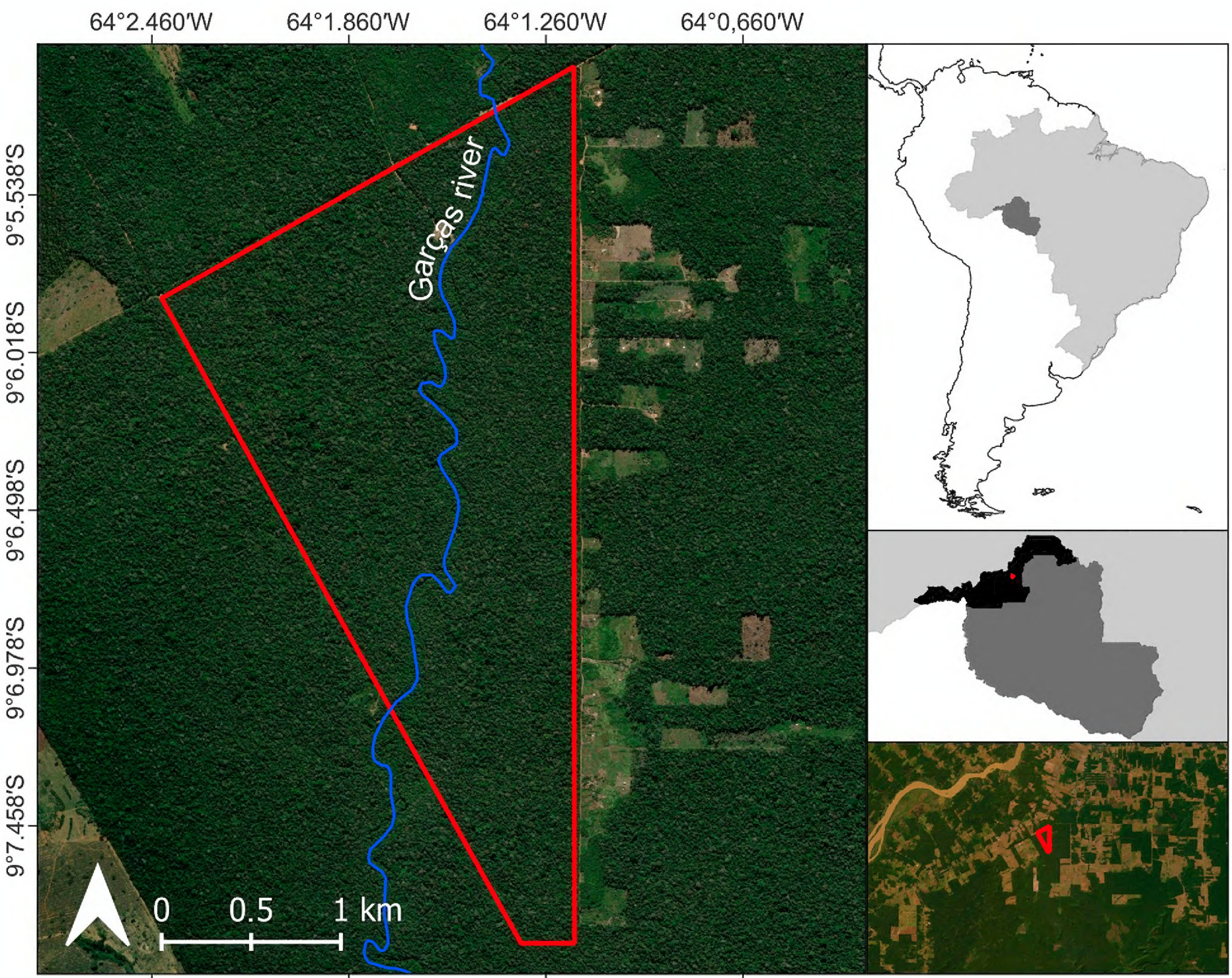


Figure 1. Location of the study area, the Base de Selva da Polícia Militar, Porto Velho, Rondônia state, Brazil.

In this research, we did not use baits, and we did not randomly distribute the camera traps. Eight sampling points were placed along the five transects we selected, including locations where mammals were expected to pass through the interior of the forest and its perimeter. There were trails in the forest that were in a saltlick, along small streams and banks of rivers, and around fruit trees, and they had recently been opened. Every 20–30 days, we checked the cameras to make sure they were in operational, replaced the batteries, and checked the memory cards. During the maintenance of the trap cameras, it was possible to make occasional recordings while walking along the linear transect, which were approximately 2–3 km long.

For the identification of species, the guides of Eisenberg and Redford (1999) and Emmons (1997) were used. The nomenclature used here follows Abreu et al. (2022), except for the genus *Plecturocebus* for which we follow Byrne et al. (2016). We also use *Leontocebus* Wagner, 1839 for the small tamarins (Rylands et al. 2016 *contra* Garbino and Martins Junior 2018) and *Passalites* Gloger, 1841 for Gray Amazonian Brocket (Morales-Donoso et al. 2023). To assess the degree of threat to extinction of each species, the IUCN Red List of Threatened Species version 2022-2 (IUCN 2023) and the Official list of Threatened Species of the Ministry of

the Environment were consulted (Ordinance MMA nº 148, 07 June 2022) (MMA 2022).

Results

A richness of 40 species of mammals, belonging to 21 families and eight orders, was recorded. (Table 1, Fig. 2). The order Carnivora accounted for 33.3% of the recorded richness. From the total, 17.9% are classified as Vulnerable according to the IUCN (2023), and 28.2% are categorized as Vulnerable in the Brazilian regional list (MMA 2022). In addition, dogs and domestic cats were recorded on the tracks.

Order Didelphimorphia
Family Didelphidae

***Didelphis marsupialis* Linnaeus, 1758**

Common Opossum
Figure 2A

Material examined. BRAZIL – Rondônia • Porto Velho; 09°07'17"S, 064°01'31"W; 83 m alt.; 15.XI.2020; Raul Afonso Pommer-Barbosa obs.; camera-trap photo; primary forest.

Identification. This is a medium-sized species up to 1.7 kg (Voss et al. 2001). It has a dark stripe on the front and

Table 1. Mammals Base de Selva da Polícia Militar, Porto Velho, Rondônia state, Brazil. Methods: CT = camera trap; OS = opportunistic sightings. IUCN and MMA status: VU = Vulnerable.

Taxon	Vernacular name	Methods	IUCN	MMA
DIDELPHIMORPHIA				
Didelphidae				
<i>Didelphis marsupialis</i> Linnaeus, 1758	Common Opossum	CT	—	—
<i>Marmosa demerarae</i> (Thomas, 1905)	Woolly Mouse Opossum	OS	—	—
<i>Metachirus nudicaudatus</i> (É. Geoffroy St.-Hilaire, 1803)	Brown Four-eyed Opossum	OS	—	—
CINGULATA				
Dasypodidae				
<i>Dasypus novemcinctus</i> (Linnaeus, 1758)	Nine-banded Armadillo	CT	—	—
<i>Dasypus beniensis</i> (Lönnberg, 1942)	Long-nosed Armadillo	CT	—	—
Chlamyphoridae				
<i>Cabassous unicinctus</i> (Linnaeus, 1758)	Southern Naked-tailed Armadillo	CT	—	—
<i>Priodontes maximus</i> (Kerr, 1792)	Giant Armadillo	CT	VU	VU
PILOSA				
Megalonychidae				
<i>Choloepus didactylus</i> (Linnaeus, 1758)	Linné’s Two-toed Sloth	OS	—	—
Myrmecophagidae				
<i>Myrmecophaga tridactyla</i> Linnaeus, 1758	Giant Anteater	CT	VU	VU
<i>Tamandua tetradactyla</i> (Linnaeus, 1758)	Collared Anteater	CT	VU	—
PRIMATES				
Atelidae				
<i>Alouatta puruensis</i> (Lönnberg, 1941)	Purús Red Howler Monkey	OS	—	—
Cebidae				
<i>Mico rondoni</i> (Ferrari et al., 2010)	Rondon’s Marmoset	OS	VU	VU
<i>Leontocebus weddelli</i> (Deville, 1849)	Weddell’s Saddle-back Tamarin	OS	—	—
<i>Sapajus apella</i> (Linnaeus, 1758)	Brown Capuchin	OS	—	—
Pitheciidae				
<i>Plecturocebus brunneus</i> (Wagner, 1842)	Brown Titi	OS	VU	—
RODENTIA				
Caviidae				
<i>Hydrochoerus hydrochaeris</i> (Linnaeus, 1766)	Capybara	CT	—	—
Cuniculidae				
<i>Cuniculus paca</i> (Linnaeus, 1766)	Paca	CT	—	—
Dasyproctidae				
<i>Dasyprocta variegata</i> (Tschudi, 1845)	Agouti	CT	—	—
Echimyidae				
<i>Dactylomys dactylinus</i> (Desmarest, 1817)	Amazon Bamboo Rat	OS	—	—
Erethizontidae				
<i>Coendou longicaudatus</i> Daudin, 1802	Long-tailed Porcupine	OS	—	—
Sciuridae				
<i>Hadroscurus spadiceus</i> (Olfers, 1818)	Southern Amazon Red Squirrel	OS	—	—
CARNIVORA				
Canidae				
<i>Cerdocyon thous</i> (Linnaeus, 1766)	Crab-eating Fox	CT	—	—
<i>Speothos venaticus</i> (Lund, 1842)	Bush Dog	CT	—	VU
Mustelidae				
<i>Eira barbara</i> (Linnaeus, 1758)	Tayara	CT	—	—
<i>Galictis vittata</i> (Schreber, 1776)	Greater Grison	CT	—	—
<i>Lontra longicaudis</i> (Olfers, 1818)	Neotropical Otter	CT	—	VU

Taxon	Vernacular name	Methods	IUCN	MMA
Procyonidae				
<i>Nasua nasua</i> (Linnaeus, 1766)	South American Coati	CT	—	—
<i>Potos flavus</i> (Schreber, 1774)	Kinkajou	OS	—	—
<i>Procyon cancrivorus</i> Cuvier, 1798	Crab-eating Raccoon	CT	—	—
Felidae				
<i>Herpailurus yagouaroundi</i> (É. Geoffroy Saint-Hilaire, 1803)	Jaguarundi	CT	—	VU
<i>Leopardus pardalis</i> (Linnaeus, 1758)	Ocelot	CT	—	—
<i>Leopardus wiedii</i> (Schinz, 1821)	Margay	CT	—	VU
<i>Puma concolor</i> (Linnaeus, 1771)	Puma	CT	—	VU
<i>Panthera onca</i> (Linnaeus, 1758)	Jaguar	CT	—	VU
PERISSODACTYLA				
Tapiriidae				
<i>Tapirus terrestris</i> (Linnaeus, 1758)	Lowland Tapir	CT	VU	VU
CETARTIODACTYLA				
Cervidae				
<i>Mazama americana</i> (Erxleben, 1777)	Red Brocket	CT	—	—
<i>Passalites nemorivagus</i> (Cuvier, 1817)	Amazonian Brown Brocket	CT	—	—
Tayassuidae				
<i>Dicotyles tajacu</i> (Linnaeus, 1758)	Collared Peccary	CT	—	—
<i>Tayassu pecari</i> (Link, 1795)	White-lipped Peccary	CT	VU	VU

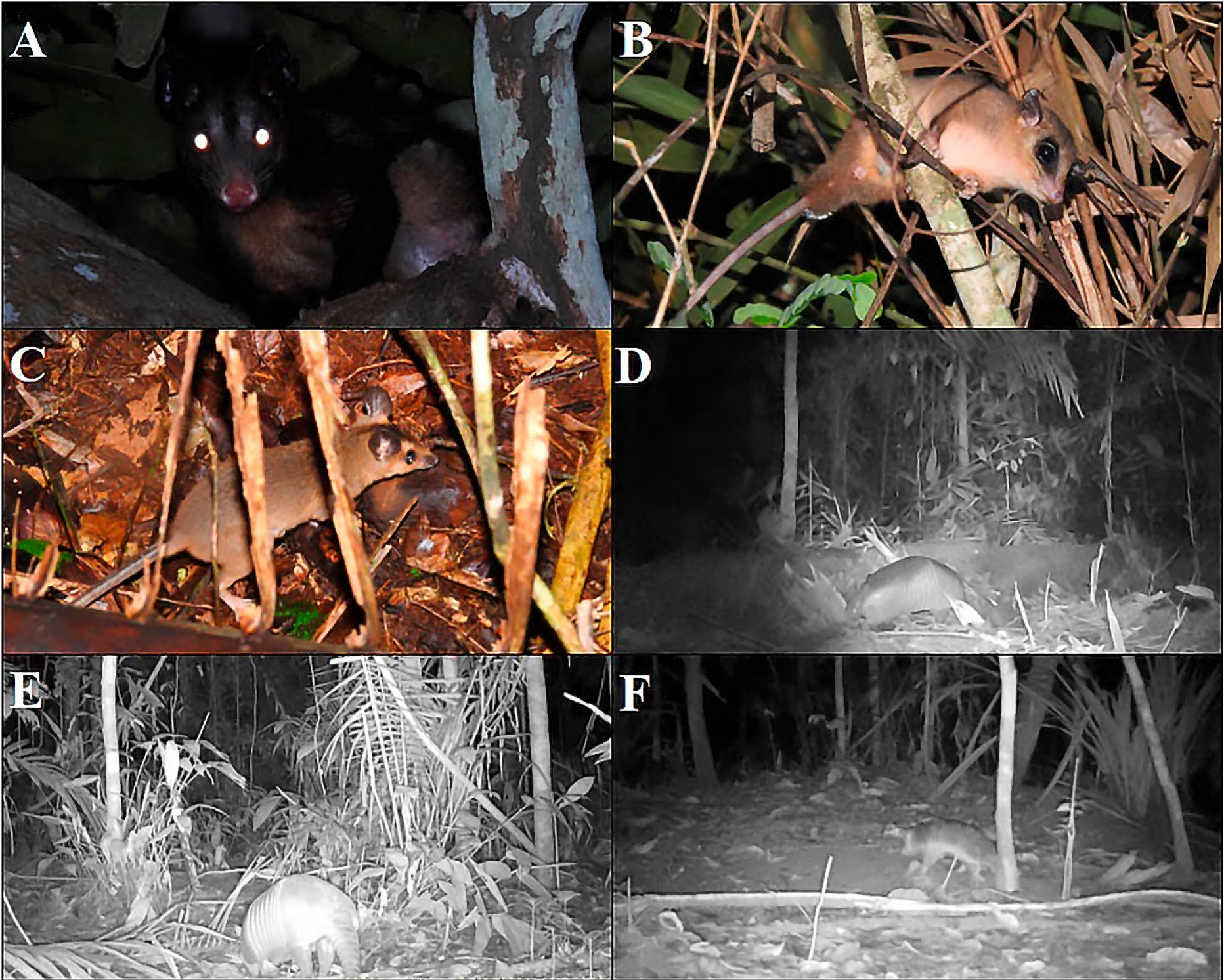


Figure 2. Marsupials and xenathrans recorded in Base de Selva da Polícia Militar, Porto Velho, Rondônia state, Brazil. **A.** *Didelphis marsupialis*. **B.** *Marmosa demerarae*. **C.** *Metachirus nudicaudatus*. **D.** *Dasypus novemcinctus*. **E.** *Dasypus beniensis*. **F.** *Cabassous unicinctus*.

another on each eye but is not as well-marked as *Didelphis albiventris*. It has large, glabrous ears with a black pinna. Its dorsal region has long white hairs, black covering hairs, and a creamy-yellow ventral coat. The tail is prehensile, with black on the basal region and the rest is yellowish white (Voss and Jansa 2003).

Order Cingulata
Family Dasypodidae

***Dasypus novemcinctus* Linnaeus, 1758**

Nine-banded Armadillo
Figure 2D

Material examined. BRAZIL – Rondônia • Porto Velho; 09°07'17"S, 064°01'31"W; 83 m alt.; 13.XI.2020; Raul Afonso Pommer-Barbosa obs.; camera-trap photo; primary forest.

Identification. This species has an elongated head with a long, pointed snout. A cephalic shield extends almost to the end of the snout. The carapace is dark brown, with yellowish shields of varying intensity, especially on the mobile belts, which are usually nine and located in the median region of the carapace. There are four toes on the forelimbs and five on the hind limbs (McBee and Baker 1982; Parera 2002).

Order Cingulata
Family Chlamyphoridae

***Cabassous unicinctus* (Linnaeus, 1758)**

Southern Naked-tailed Armadillo
Figure 2F

Material examined. BRAZIL – Rondônia • Porto Velho; 09°07'17"S, 064°01'31"W; 83 m alt.; 13.XI.2020; Raul Afonso Pommer-Barbosa obs.; camera-trap photo; primary forest.

Identification. This armadillo has a carapace with 10–13 not very well demarcated mobile bands; the carapace is dark brown with yellowish edges (Emmons 1997). There are five toes on the forelimbs, and the middle toenail is larger and sickle-shaped, which is an adaptation to digging. The ears are small, and there are more than 50 irregularly distributed cephalic shields (Wetzel 1980).

***Priodontes maximus* (Kerr, 1792)**

Giant Armadillo
Figure 3A

Material examined. BRAZIL – Rondônia • Porto Velho; 09°07'17"S, 064°01'31"W; 83 m alt.; 13.XI.2020; Raul Afonso Pommer-Barbosa obs.; camera-trap photo; primary forest.

Identification. This is the largest extant species of armadillo. It has 11–13 highly flexible, movable belts which give animals a flexible shell. The body is dark brown, except for the head, tail, and around the edge of the carapace, which are lighter. Hairs are few and far between (Nowak 1999). The long, tapering tail is covered by small, pentagonal shields (Emmons 1997). On the third finger, there is a falciform claw measuring about 20 cm (Nowak 1999).

Order Pilosa
Family Megalonychidae

***Choloepus didactylus* (Linnaeus, 1758)**

Linné's Two-toed Sloth
Figure 3B

Material examined. BRAZIL – Rondônia • Porto Velho; 09°05'40"S, 064°01'35"W; 83 m alt.; 05.V.2021; André Luiz da Cruz Prestes obs.; opportunistic Sightings; primary forest.

Identification. The coat is uniform grayish brown over the entire body except for the face, which is paler, and with the top of the head and shoulders, which are darker (Nowak 1999).

Family Myrmecophagidae

***Myrmecophaga tridactyla* Linnaeus, 1758**

Giant Anteater
Figure 3C

Material examined. BRAZIL – Rondônia • Porto Velho; 09°07'17"S, 064°01'31"W; 83 m alt.; 13.XI.2020; Raul Afonso Pommer-Barbosa obs.; camera-trap photo; primary forest.

Identification. This species has a dense coat which varies from dark gray to black. The forelimbs have four toes and three strong, large claws, with the claw of the third finger largest. The hind limbs have five toes, each with short claws. The forelimbs are white with black bands on the wrist and above the claws. There is a diagonal white band on the side of the body (Eisenberg and Redford 1999).

Order Primates
Family Atelidae

***Alouatta puruensis* Lönnberg, 1941**

Purús Red Howler Monkey

Material examined. BRAZIL – Rondônia • Porto Velho; 09°05'40"S, 064°01'35"W; 83 m alt.; 02.IV.2021; Jéssica Teodoro obs.; opportunistic sightings; primary forest.

Identification. Males of this species are dark reddish with a slightly golden back, and females are nearly orange and with a pale golden back (Gregorin 2006). This taxon was previously considered a subspecies of *Alouatta seniculus* (Linnaeus, 1766) (Hill 1962; Stanyon et al. 1995), and Groves (1993) considered *A. s. puruensis* to be synonymous with *A. seniculus* and, later, synonymous with *A. s. juara* (Groves 2001, 2005). Recently, *A. s. puruensis* has been recognized as a distinct species (Gregorin 2006).

Family Cebidae

***Mico rondoni* Ferrari et al., 2010**

Rondon's Marmoset
Figure 3E

Material examined. BRAZIL – Rondônia • Porto Velho; 09°05'40"S, 064°01'35"W; 83 m alt.; 02.IV.2021; Jéssica Teodoro obs.; opportunistic sightings; primary forest.



Figure 3. Xenathra and primate species recorded in Base de Selva da Polícia Militar, Porto Velho, Rondônia state, Brazil. **A.** *Prio-dontes maximus*. **B.** *Choloepus didactylus*. **C.** *Myrmecophaga tridactyla*. **D.** *Tamandua tetradactyla*. **E.** *Mico rondoni*. **F.** *Leontocebus weddelli*.

Identification. This species has relatively little facial hair, which is present in the nasal area and between the eyes and extends from the forehead to the sides of the head; the hair is densest in the ears and on the neck. The face is unpigmented but has spots of melanin on the lips and nostrils. There is a white rim around the face, contrasting with the adjacent gray pelage. The hind limbs are brown, and the proximal portion of the tail, which is black with white spots, is blackened. The dorsal and ventral regions are gray (Ferrari et al. 2010). This taxon was initially described as an isolated population of *Mico emiliae* (Thomas 1920) by de Vivo (1985). However, morphological and molecular analyses indicated it was a new species (Nagamachi et al. 1999; Sena et al. 2002), which was described as *M. rondoni* by Ferrari et al. (2010).

Order Rodentia
Family Caviidae

***Hydrochoerus hydrochaeris* (Linnaeus, 1766)**

Capybara

Figure 4C

Material examined. BRAZIL – Rondônia • Porto Vel-

ho; 09°06'34"S, 064°01'31"W; 83 m alt.; 02.II.2021; Raul Afonso Pommer-Barbosa obs.; camera-trap photo; primary forest.

Identification. This species is the largest living rodent. It has a large head, short, round ears, short limbs, and a vestigial tail. The coat is thick and long, with a reddish-brown to grayish upper parts, and brown to yellowish lower parts (Emmons 1997).

Family Cuniculidae

***Cuniculus paca* (Linnaeus, 1766)**

Paca

Figure 4D

Material examined. BRAZIL – Rondônia • Porto Velho; 09°06'34"S, 064°01'31"W; 83 m alt.; 26.IX.2021; Geovanna Santos da Silva obs.; camera-trap photo; primary forest.

Identification. The head is broad head, and the limb relatively strong. There are elongate digits, four on the forefeet and five on the hindfeet. The tail is reduced and imperceptible. The coat is short and that varies from reddish brown to dark brown, and there is a pattern of

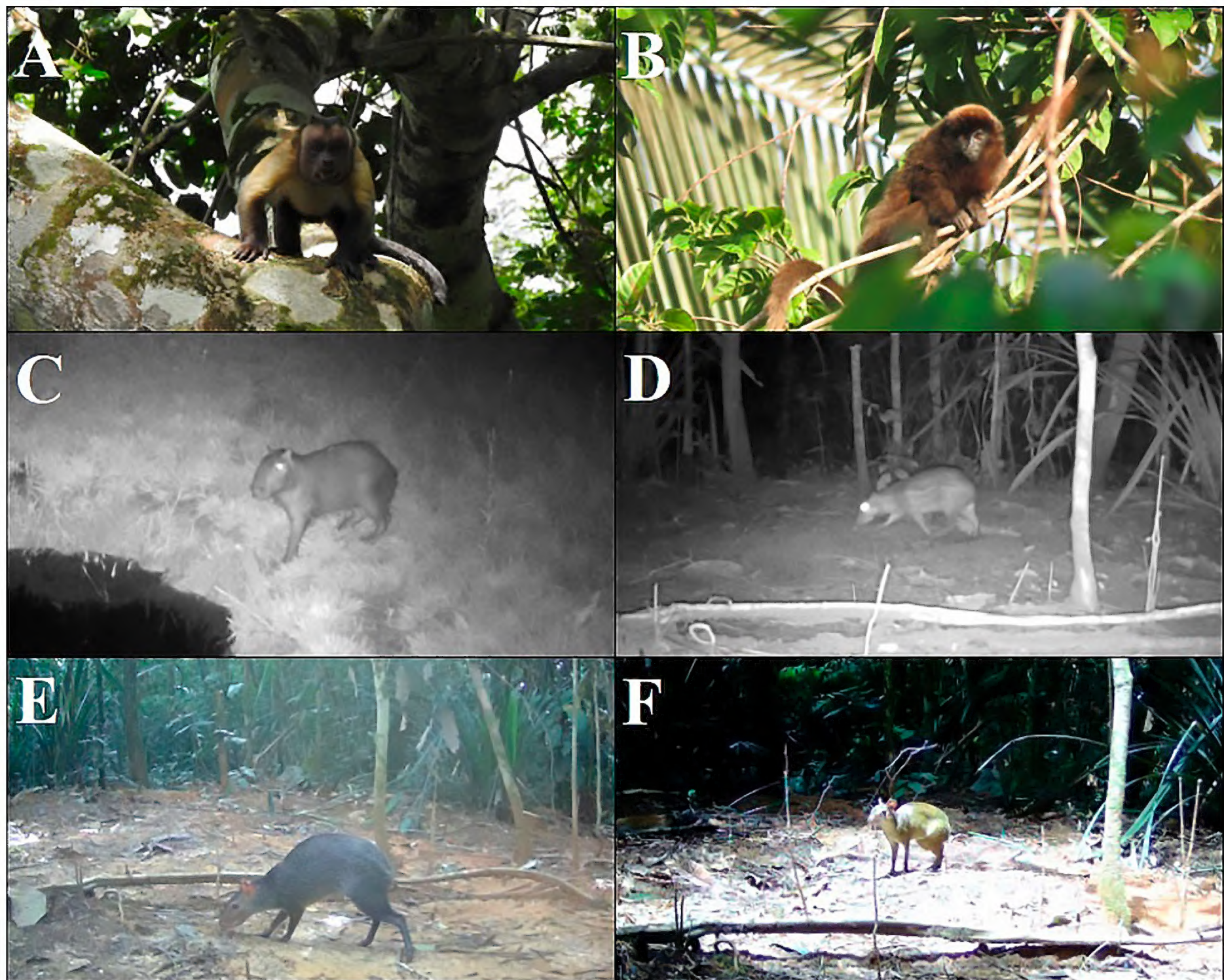


Figure 4. Primates and rodents recorded in Base de Selva da Polícia Militar, Porto Velho, Rondônia state, Brazil. **A.** *Sapajus apella*. **B.** *Plecturocebus brunneus*. **C.** *Hydrochoerus hydrochaeris*. **D.** *Cuniculus paca*. **E.** *Dasyprocta variegata*. **F.** *Dasyprocta* sp.

whitish, rounded patches in longitudinal lines on the sides of the body (Reis et al. 1996).

Family Echimyidae

***Dactylomys dactylinus* (Desmarest, 1817)**

Amazon Bamboo Rat

Figure 5A

Material examined. BRAZIL – Rondônia • Porto Velho; 09°07'10"S, 064°01'23"W; 83 m alt.; 27.IX.2021; Jéssica Teodoro obs.; opportunistic sightings; primary forest.

Identification. This species has a long, hysspid coat, with a grayish-yellow back with black streaks, a band of darker hairs from neck to tail, and a band of lighter hairs from muzzle to neck. The head is lighter. Hair on the ventrum entirely white, and there is no defined boundary with the back. The tail is almost completely covered with short hair, with large scales visible, except for the first 60 mm near the base, which is covered with long hair. There is a band of darker hair from the tip of the snout to the nape (Bonvicino et al. 2008).

Order Carnivora
Family Canidae

***Cerdocyon thous* (Linnaeus, 1766)**

Crab-eating Fox

Figure 5C

Material examined. BRAZIL – Rondônia • Porto Velho; 09°06'34"S, 064°01'31"W; 83 m alt.; 27.IX.2021; Geovanna Santos da Silva obs.; camera-trap photo; primary forest.

Identification. This species has a relatively short snout and pale-gray sides of the body; the tips of the ears, back of the legs, and the region between the jaws are black (Berta 1982).

***Speothos venaticus* (Lund, 1842)**

Bush Dog

Figure 5D

Material examined. BRAZIL – Rondônia • Porto Velho; 09°06'34"S, 064°01'31"W; 83 m alt.; 21.IX.2021; Geovanna Santos da Silva obs.; camera-trap photo; primary forest.

Identification. This species has small, rounded ears and a short tail, snout, and limbs. It has a thick, reddish-brown coat throughout the body, except for the head which is slightly reddish-golden (Eisenberg and Redford 1999).

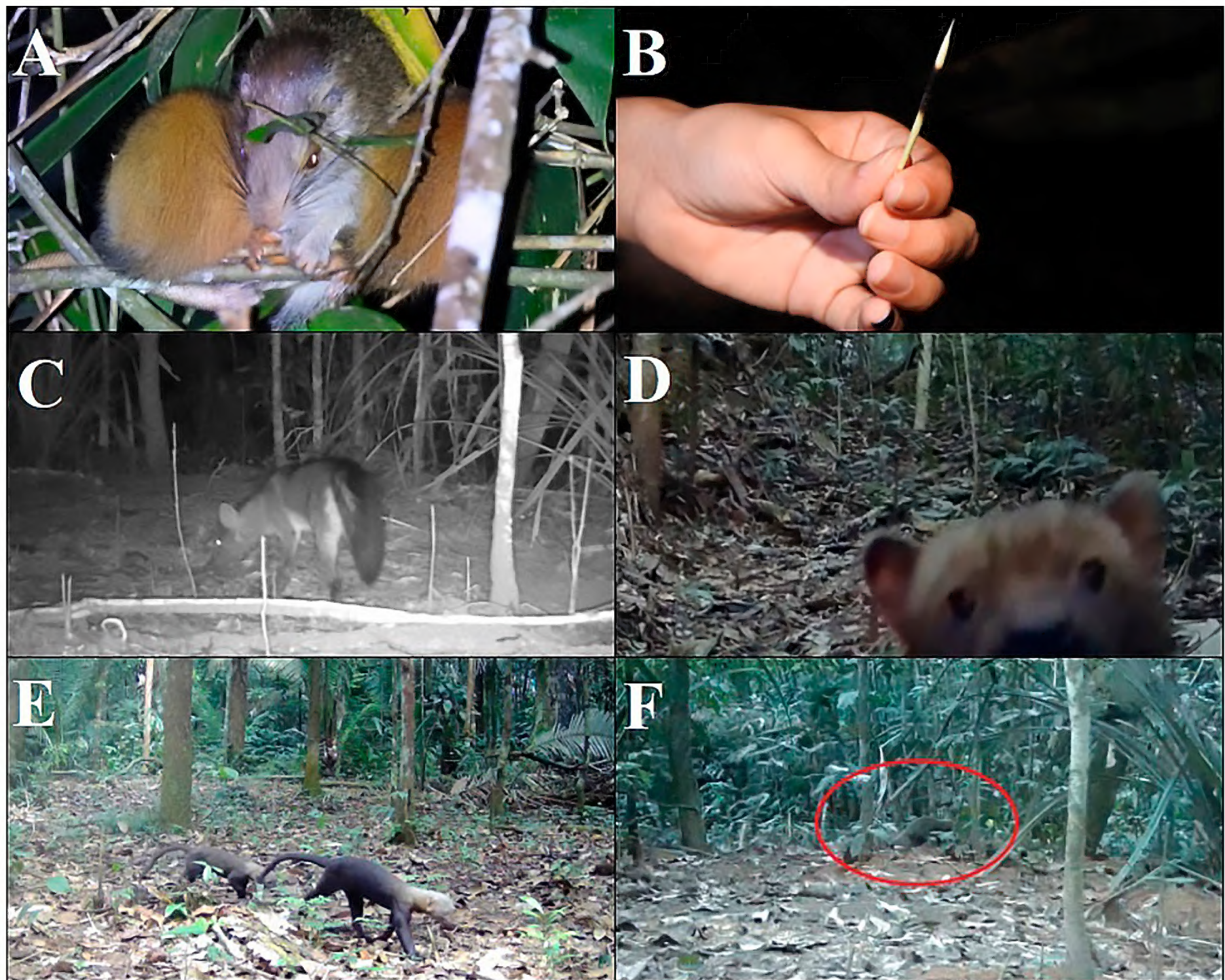


Figure 5. Rodents and carnivores recorded in Base de Selva da Polícia Militar, Porto Velho, Rondônia state, Brazil. **A.** *Dactylomys dactylinus*. **B.** *Coendou longicaudatus*. **C.** *Cerdocyon thous*. **D.** *Speothos venaticus*. **E.** *Eira barbara*. **F.** *Galictis vittata*.

Family Mustelidae

***Eira barbara* (Linnaeus, 1758)**

Tayara

Figure 5E

Material examined. BRAZIL – Rondônia • Porto Velho; 09°06'34"S, 064°01'31"W; 83 m alt.; 25.XI.2020; Raul Afonso Pommer-Barbosa obs.; camera-trap photo; primary forest.

Identification. This species has an elongate body, short limbs, and a long tail. The coat and head are dark brown, and there may be a yellowish-white spot on the neck (Eisenberg and Redford 1999).

***Galictis vittata* (Schreber, 1776)**

Greater Grison

Figure 5F

Material examined. BRAZIL – Rondônia • Porto Velho; 09°06'34"S, 064°01'31"W; 83 m alt.; 19.X.2020; Raul Afonso Pommer-Barbosa obs.; camera-trap photo; primary forest.

Identification. This species has an elongate body and short limbs. The throat, belly, face, and limbs are black and separated from the grayish back by a white band

which extends longitudinally from forehead to shoulders (Emmons 1997).

***Lontra longicaudis* (Olfers, 1818)**

Neotropical Otter

Figure 6D

Material examined. BRAZIL – Rondônia • Porto Velho; 09°06'34"S, 064°01'31"W; 83 m alt.; 12.IV.2021; Raul Afonso Pommer-Barbosa obs.; camera-trap photo; primary forest.

Identification. This species has an elongate body, with a total length of 53–80 cm and a weight of 5–14 kg. It has a dense coat, with an inner layer of fine, soft hair and an outer layer of longer, stiffer hair. It is predominantly brown, but the throat is lighter than the rest of the body. The tail is muscular, flattened, and with interdigital membranes (Eisenberg and Redford 1999).

Family Procyonidae

***Nasua nasua* (Linnaeus, 1766)**

South American Coati

Figure 5B

Material examined. BRAZIL – Rondônia • Porto Velho; 09°06'34"S, 064°01'31"W; 83 m alt.; 19.III.2021;

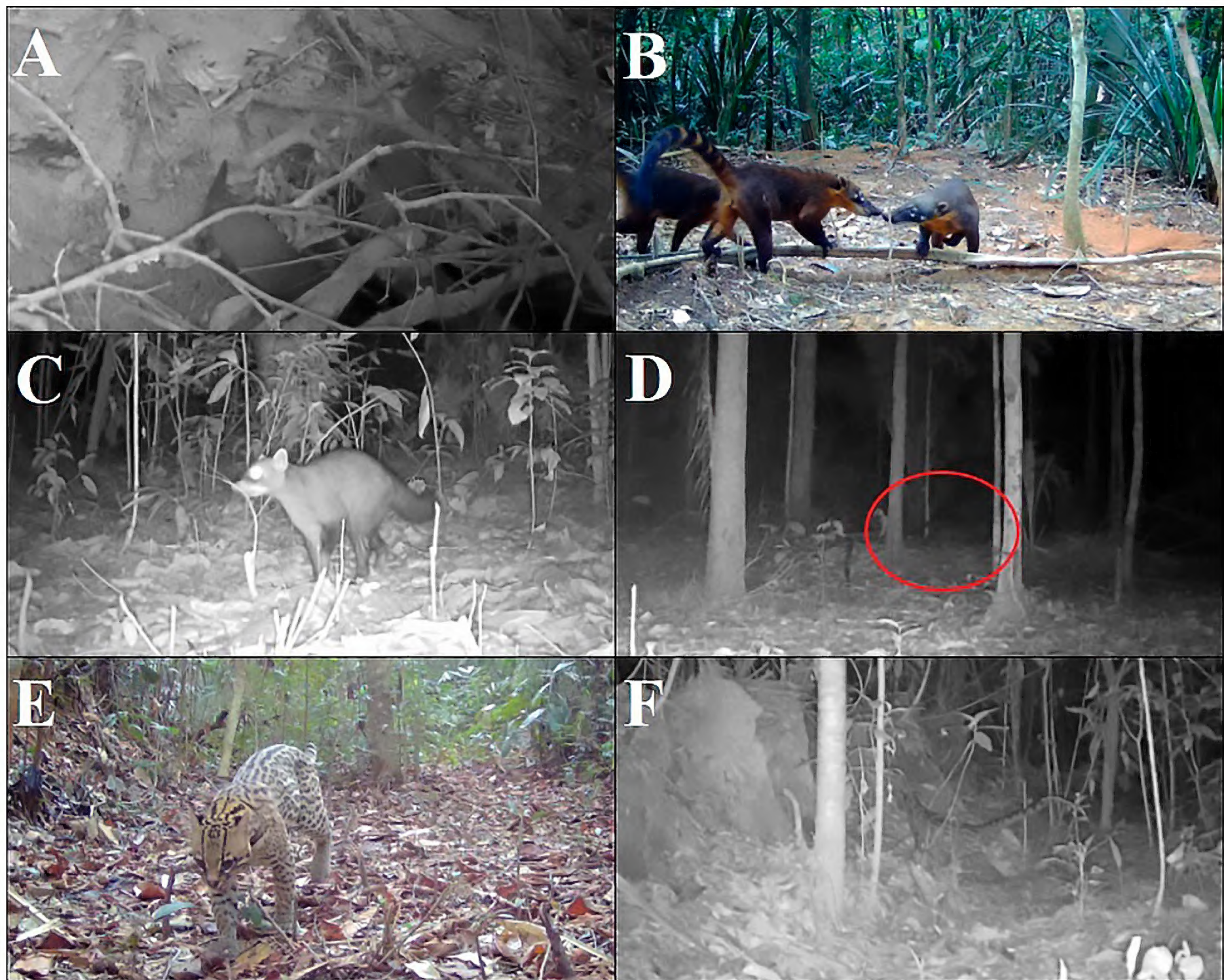


Figure 6. Carnivores recorded in Base de Selva da Polícia Militar, Porto Velho, Rondônia state, Brazil. **A.** *Lontra longicaudis*. **B.** *Nasua nasua*. **C.** *Procyon cancrivorus*. **D.** *Herpailurus yagouaroundi*. **E.** *Leopardus pardalis*. **F.** *Leopardus wiedii*.

Geovanna Santos da Silva obs.; camera-trap photo; primary forest.

Identification. This is a medium-sized mammal with a long, narrow snout. Its coat may vary from dark yellow to brown on dorsally, and the belly is lighter than the back. The tail is not prehensile and has thick, black rings. The ears are short (Gompper and Decker 1998).

Family Felidae

Herpailurus yagouaroundi (É. Geoffroy Saint-Hilaire, 1803)

Jaguarundi

Figure 6D

Material examined. BRAZIL – Rondônia • Porto Velho; 09°06'34"S, 064°01'31"W; 83 m alt.; 08.IV.2021; Raul Afonso Pommer-Barbosa obs.; camera-trap photo; primary forest.

Identification. This species has a small, elongate, flat head with small, rounded ears. The body is slender, with a long tail and short legs. Coloration can vary, but in forested environments it is dark brown (Emmons 1997). The species has previously been included in the genus *Puma* by Bininda-Emonds et al. (1999) and Mattern and McLennan (2000).

Order Perissodactyla
Family Tapiridae

Tapirus terrestris (Linnaeus, 1758)

Lowland Tapir

Figure 7C

Material examined. BRAZIL – Rondônia • Porto Velho; 09°06'34"S, 064°01'31"W; 83 m alt.; 08.IV.2021; Raul Afonso Pommer-Barbosa obs.; camera-trap photo; primary forest.

Identification. The head of this species is convex, with a prominent sagittal crest and a narrow mane which extends from the base of the snout to halfway down the back (Emmons 1997). The muzzle has a small, movable trunk and is curved downward, and there is an extension on the upper lip (Eisenberg 1989). The coat is short, rough, and blackish brown, but on the chest, belly, and limbs, it is dark brown; the mane is black, and the sides of the face brown and grayish (Padilla and Dowler 1994).

Order Cetartiodactyla
Family Cervidae

Mazama americana (Erxleben, 1777)

Red Brocket

Figure 7D



Figure 7. Felis and ungulates recorded in Base de Selva da Polícia Militar, Porto Velho, Rondônia state, Brazil. **A.** *Puma concolor*. **B.** *Panthera onca*. **C.** *Tapirus terrestris*. **D.** *Mazama americana*. **E.** *Passalites nemorivaga*. **F.** *Dicotyles tajacu*. **G.** *Tayassu pecari*.

Material examined. BRAZIL – **Rondônia** • Porto Velho; 09°06'34"S, 064°01'31"W; 83 m alt.; 17.VI.2021; Claudia Christian Bezerra de Souza obs.; camera-trap photo; primary forest.

Identification. This is the largest species in the genus *Mazama* Rafinesque, 1817 and has a uniform, reddish-brown body. The neck and face are gray. The internal areas of the hind limbs, tail, submandibular, tip of the upper jaw and internal edge of the ears are white (Duarte

1996). Males have short horns which are approximately 10 cm long and unbranched (Varela et al. 2010).

***Passalites nemorivagus* (Cuvier, 1817)**
Amazonian Brown Brocket
Figure 7E

Material examined. BRAZIL – **Rondônia** • Porto Velho; 09°06'34"S, 064°01'31"W; 83 m alt.; 17.VI.2021; Claudia Christian Bezerra de Souza obs.; camera-trap photo; primary forest.

Identification. This species is grayish brown with a small, well-defined subterminal box on the back and sides of the neck. The back of the tail is dark brown with a white belly. The abdominal region varies from light brown to yellowish brown. Males have a single, spike-shaped horn (Azevedo et al. 2021).

Family Tayassuidae

***Dicotyles tajacu* (Linnaeus, 1758)**

Collared Peccary

Figure 7F

Material examined. BRAZIL – Rondônia • Porto Velho; 09°06'34"S, 064°01'31"W; 83 m alt.; 17.VI.2021; Claudia Christian Bezerra de Souza obs.; camera-trap photo; primary forest.

Identification. The body is Brown or black in color, speckled with white, with white or yellowish bands, and there is a white collar on the neck which extends obliquely from the back to above the shoulders (Emmons 1997).

***Tayassu pecari* (Link, 1795)**

White-lipped Peccary

Figure 7G

Material examined. BRAZIL – Rondônia • Porto Velho; 09°06'34"S, 064°01'31"W; 83 m alt.; 16.VII.2020; Raul Afonso Pommer-Barbosa obs.; camera-trap photo; primary forest.

Identification. This species is dark brown to black, and there is a light spot along the entire mandible, a characteristic of the species. It has a robust body, and a long head, which is proportionally large in relation to the body (Emmons 1997; Díaz and Barques 2002).

Discussion

Our study recorded the highest mammal richness from a locality in Rondônia state, highlighting the importance of private protected areas for mammal conservation in the state. This difference in species richness between our study and previous surveys may be due to the methods used, size of the area, and intensity of anthropic influence. Ferronato et al. (2018), Medeiro et al. (2019), and Silva et al. (2021) used linear transects as the main method to record species. In this method, transects or trails are randomly arranged within the study area, and these transects are preferably walked during the hours of 06:00–12:00, as this is considered the time of peak activity of most diurnal mammal species, especially primates and rodents (NCR 1981; Peres and Cunha 2011). Unlike linear transections, camera traps operate 24 hours regardless of the presence of the researcher and can be set at strategic points of animal passage, ensuring a greater record of species. For certain groups, such as carnivores and armadillos, the camera trap method is the most appropriate (Santos et al. 2019; Nagy-Reis et al. 2020; Antunes et al. 2022). Fragoso et al. (2016) noted that the use of diverse methods favors

a greater record of species due to sampling biases and focus groups.

The size of the study area may be important. Medeiro et al. (2019) conducted their survey in a permanent protected area, which is a riparian forest, with a maximum width of 81 m and an area of 1.01 km². Silva et al.'s (2021) study was conducted in a legal reserve area of 1.29 km². In both studies, the study areas were immersed in a matrix of pasture. Thus, the study areas were smaller sizes with different anthropic impacts than our study area, limiting the long-term persistence of the species. The study by Ferronato et al. (2018), on the other hand, surveyed a large forest block, with limited human presence, although timber management did occur. In Ferronato et al.'s study, the area surveyed was a large forest block composed of Karitiana Indigenous Land and the Bom Futuro National Forest, with a total area of approximately 1,700 km². Even though hunting occurs in this area, these protected regions may favor the recruitment of new individuals.

The recording of exotic species is a potential threat to recorded native species. The domestic cat and the domestic dog are among the most recorded exotic species in the Neotropics, and they may threaten native animals by introducing of diseases, hybridization, and preying native species (Leonard et al. 2013; Vilela and Lamim-Guedes 2014). In rural environments, these species freely breed, have unrestricted access to forested environments, and have low vaccination coverage, potentiating their impact on native species (Martinez et al. 2013). Assis et al. (2023) recorded through a systematic review and anecdotal records 48 native species of vertebrates preyed upon by domestic cats in the Amazon, Cerrado, and Atlantic Forest. Rangel and Neiva (2013) recorded 36 occurrences of injuries caused by domestic dogs on wild animals in the Botanical Garden of Rio de Janeiro from 2005 to 2012. In that study, 33% of the animals were collected already dead, 17% were rescued but had severe injuries, and 50% were orphaned pups whose mothers were killed. These data reinforce the need to understand the impacts and interactions occurring in forest environments between exotic and native species.

The recorded presence of hunters represents a concern regarding the conservation of a portion of the recorded species. Of the 40 species recorded by us, 55% of them are susceptible to hunting (Oliveira et al. 2022). Although game meat has both economic and nutritional importance to traditional and local communities (Rogan et al. 2018; Booth et al. 2021; Torres et al. 2022), this extraction model is responsible for the extinction process of different species around the planet (Galetti and Dirzo 2013). Of the species susceptible to hunting, we highlight *Tapiris terrestris* and *T. pecari*, both species classified as “Vulnerable” in both the IUCN and Brazilian Red Lists. *Tapiris terrestris* is an important seed disperser and is threatened by hunting, habitat fragmentation, resource extraction, and population isolation. To this end, one of the necessary research

projects is the monitoring of populations throughout this species' distribution (Medici et al. 2012). *Tapiris pecari* is similar; however, there are no specific conservation programs for it (Keuroghlian et al. 2012). Thus, the detection of *T. pecari* within a landscape that suffers anthropogenic pressures can positively contribute to the creation of conservation programs for both species.

Besides hunting for food, there is also hunting for control purposes or due to human–wildlife conflicts. Among the species that are the target of this hunting modality we highlight the large felids, especially *Puma concolor* and *Panthera onca*, both categorized as Vulnerable to extinction in the Brazilian Red List. Lima et al. (2020) pointed out that these species are mainly killed in retaliation due to depredation of domestic animals. Felids have key roles in trophic interactions, and a better understanding of their distribution is essential for conservation management (Nagy-Reis et al. 2020), especially in highly impacted environments susceptible to hunting. Although both hunting modalities were not possible to evaluate, they may compromise the long-term persistence of 55% of the species recorded.

This investigation discovered several endangered species at the site (Table 1). Rondônia is renowned for its high biological diversity, which increases the likelihood of discovering numerous endangered species in the area. However, the precise diversity of endangered species can vary depending on the research method employed, the size of the studied area, and the time period for which data are collected. To effectively monitor and conserve endangered species, it is necessary to establish long-term research programs, constant monitoring, and conservation efforts that consider not only the species but also the threats to their habitat and survival. In addition, collaboration between scientists, governments, NGOs, and local communities is essential to preserve the region's biodiversity.

From the species recorded, we highlight the Rondônia-endemic *Mico rondoni*, which is classified as Vulnerable. The distribution area initially described for the species was 68,649 km² (Ferrari et al. 2010), and six years later there was already a loss of 15,500 km², with 71% of its geographic distribution not in protected areas. The expected loss of its total geographic distribution by 2040 is 50% (Ochoa-Quintero et al. 2017). Thus, the maintenance of protected areas and areas with special private use regimes will be essential for the conservation of this species.

The studied area has a high species richness, encompassing species susceptible to anthropogenic threats, and some of these species are vulnerable to extinction. The legal reserves and permanent protected areas are special-use and protected spaces that need more attention, recognition, and resources for a better design and implementation (Palfrey et al. 2022). The fact that such protected areas are patches are isolated and surrounded by a rural landscape reflects how the implementation does not prioritize a design that favors the connectivity of the fragments, which is a serious concern in limiting

gene flow. Therefore, long-term studies on the richness and abundance of these populations needed to validate the importance of these areas in the conservation of species.

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